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COMPUTERNEWS

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Cover

This month's cover photograph by Mark Tapia shows a portion of the UTCS exhibit at the Academic Office of the Future Conference held last month at the University of Toronto. For a detailed discussion of the topic Office of the Future, see the articles in this edition of *COMPUTERNEWS* entitled *THE ACADEMIC OFFICE OF THE FUTURE* and *UTCS AND THE OFFICE OF THE FUTURE*.

Contents

The Academic Office of The Future 3
UTCS and The Office of The Future 4
Computer Communications 8
Year End Accounting Questionnaire 11
11th OUCC 12
Computer Instruction - Yes, The Teachers Do Teach 15
Software Tools and USENIX Meetings 16
Non-Credit Short Course at UTCS 17
SAS Conference Debriefing 18
SPSS to SCSS File Transfers 19
Removal of UTSELECT 19
MARK IV Documentation 19
Errata 20
COMPUTERNEWS Subscriptions for CAN Holders 21
Personnel Changes 21
New Titles in DCS Library 21
Systems Directory

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THE ACADEMIC OFFICE OF THE FUTURE

Last month, the University of Toronto hosted the Academic Office of the Future Conference. The conference, which was held on the St. George campus, featured a series of talks given by Ms. Addie Mattox, a noted expert on office automation in educational and research institutions. Also of note were a wide variety of vendor displays and demonstrations of state-of-the-art equipment associated with office automation. Exhibits included everything from futuristic dictation equipment to sophisticated duplication and text processing systems. Although UTCS did not have any part in organizing the show, we had the privilege of having prime exhibition space to showcase the contribution which can be made by UTCS to our academic community.

The UTCS approach to the Office of the Future is described in detail in a brochure which was specially prepared for distribution at the Conference. A large portion of the brochure is reprinted in the article *UTCS AND THE OFFICE OF THE FUTURE* which appears in this edition of *COMPUTERNEWS*. Complete copies of the brochure are available from the UTCS Information Office EA 206 phone 978-4990.

ATMS

During the Conference, UTCS demonstrated an IBM product called **Advanced Text Management System** (ATMS). For readers unfamiliar with this product, ATMS is a powerful text processing system expressly designed for interactive document preparation. The features and benefits of ATMS are described in the article *UTCS AND THE OFFICE OF THE FUTURE* under the heading **The Demonstration.**

UTCS plans to phase out ATS and phase in ATMS during the summer of 1980. It should be emphasized that our current ATS users will find the transition to ATMS quite painless since all files are upwards compatible (i.e. the user will have to make no changes), and minimal retraining will be required. However, to take full advantage of ATMS, some effort may be warranted. Since ATMS is a new product, while ATS is over a decade old, many additional facilities and enhancements have been provided. Our plans call for the implementation of a full-training program for ATMS prior to the withdrawal of the ATS services. This training program will include online lessons as well as classroom instruction and documentation. As further details become available concerning UTCS's plans, this information will be published in *COMPUTERNEWS*.

Terminal Support

ATMS can be accessed from 3270-series compatible terminals such as those currently used by many of our administrative users on the IBM 3031. These users will be able to use ATMS without incurring any additional equipment, wiring, or port charges. Users of CRT terminals on the 3033 may have to wait a little longer than other users until these screens are also supported for ATMS. UTCS hopes to eventually support all terminals currently used on any of our systems although **full-screen** support will only be provided for IBM 3270 or 3270-equivalent terminals.

VIVA

For the user who wishes to look at distributed computing, the VIVA environment whose simulated prototype was demonstrated at our booth, may be available in the future. However, because this particular product is very dependent upon input from the user community, suggestions and criticisms of the prototype are heartily invited.

UTCS is grateful to have had the opportun-

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ACADEMIC OFFICE continued

ity to participate in the Academic Office of the Future Conference. Owing to time and space restrictions, there were frequent occasions when the large numbers of people attending our exhibit made it impossible to respond to the numerous questions on an individual basis. The members of our staff, who were at all times busy giving demonstrations under these constraints, may also have found it difficult to respond to individual questions. Therefore, anyone interested in a demonstration of ATMS and/or VIVA should contact their Computing Services Representative to make the necessary arrangements.

Frank Spitzer

UTCS AND THE OFFICE OF THE FUTURE

Editor's Note: The following article consists of excerpts from the brochure *University of Toronto Computing Services and the Academic Office of the Future* which was prepared by the UTCS Text Processing Product Line Group for distribution at the Academic Office of the Future Conference.

How UTCS can automate your word-processing and make the computer work for your office...

Introduction

University of Toronto Computing Services provides information processing services for the University in many diverse areas. Traditionally, these have included research, administrative, teaching and institutional uses. During the past five years, these have been expanded to include databases, personnel management and simulation to name but a few of the trends.

Word processing, as generally interpreted, concerns itself with office mechanisation on an individual user basis. The hardware which provides the vehicle for this automation is mostly suited to limited technical and administrative areas.

The larger objective of office automation has as its goal the overall administrative and academic benefits of the University. For these benefits, a large diversity of hardware (computers), software (programs) and people must be able to communicate efficiently and perform many unrelated tasks. Such an automated office must in the future support personal processing, such as word processing, but also the larger field of text processing, information retrieval and information transfer from location to location. Thus, terms like "transaction processing", "activity management" and "conferencing" may be applied to the University *office of the future.*

The University of Toronto Computing Services is displaying an introduction to the trends which it believes are reasonable and which will soon be commonplace. To this end, we are providing a demonstration and hope that users will make suggestions concerning features which they would regard as important in *their own* automated office of the future. In particular, observers should note that customized terminals and applications can often easily be supported. Also, an overriding consideration in the thrust of the University of Toronto Computing Services' effort in word processing is to integrate this operation into an overall text processing plan.

Word Processing

Definition

Word processing is the entering, editing, storage and retrieval, of words which, when strung together, constitute text. In general, word processing systems come in many shapes, sizes and with varying capabilities. Frequently, these units are stand-alone, meaning that they only require to be plugged into a wall outlet and require no

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UTCS AND THE FUTURE OFFICE continued

communication with a remotely located computer or storage device. The texts which may be locally stored by such machines are, mostly, limited in length and cannot take advantage of characters not normally available on an ordinary typewriter. Such a stand-alone system contains a number of distinct components whose functions should be clearly understood. These functions must also form part of any other word processing system, and are therefore discussed in general terms.

Editor

The editor is a program (software) enabling the user to enter, save, modify and retrieve the entered text. To provide these functions, the editor accepts various commands, addressing the text to be manipulated. In general, there are two distinct forms through which this may be done. This may be by referring to line number, or, current line position in the text, or by the use of a full-screen editor through which the text may be altered as it is displayed on a video display terminal. This latter system functions by the use of a visible pointer (cursor), moved directly by interactive keys at the terminal. Such an editor is easier to use and usually more difficult to misuse as its actions are immediately visible and are natural to the user.

Since a powerful editor has many possible commands, the educational process required to become familiar with an editor is important. UTCS believes that on-line, interactive, automatic instruction of the user by the computer, is a desirable objective.

Formatter

Although skillful typists routinely lay out office correspondence without effort or much conscious thought, a "formatter" can automate this function and thereby provide uniformity particularly to large documents. When more than one operator is involved, such uniformity would be unachievable, except through automation. A formatter (software) is a program which enables the typist to take advantage of additional possibilities, in preparing text. For example, an automatically created table of contents and automatically generated page numbers are quite common. In addition, a formatter can take advantage of the facilities provided by particular output devices.

For example, a display screen cannot readily show lines longer than 80 characters, whereas a printing, typewriter-like terminal, such as a Xerox 1641, can have line lengths up to 133 characters. A well-programmed formatter can automatically take advantage of some of these variations and can also allow for proportionally spaced text as would be available on a typesetting machine.

In order to ensure satisfactory results, online lessons, as discussed for the editor, are desirable. Furthermore, verification of the requested formatting instructions for feasibility as the text is entered will reduce the frustration of possible mis-formatting. Thus a system, using a full-screen editor and an integrated formatter, will partially format the text during text entry allowing the operator to verify the quality of work during its progress. Again, the use of a full-screen environment ensures that when this progress is unsatisfactory, the system will prompt with suitable suggestions concerning corrective action. The magnitude of this integration implies at least some dependence on a host machine.

Cost Effectiveness

Through the use of a suitably integrated text editor and text formatter, word processing can be greatly speeded up. The editing cycle will be reduced substantially, and the results of major revisions can be viewed on a screen before being committed to paper. Thus, not only will the typist be involved in the editing cycle, but the use of the Editor's "blue pencil" may be replaced by the use of a display terminal. There is no reason why the provision of a terminal for professionals should not increase the efficiency of all publication processes. Professionals, by editing their own material, will more quickly achieve the desired results and can integrate changes more uni-

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UTCS AND THE FUTURE OFFICE continued

formly into the text.

Requirements

In order to access facilities such as have been described, existing low cost terminals may be used, although the full benefits may only be achieved when used in conjunction with higher speed, full-screen display terminals. Communications with the central computer may be via telephone or direct hard-wired line at speeds selectable by the user. The preferred "work-station" would probably be a full-screen display terminal with its own (or shared) printer.

Naturally, users wishing to have local text storage and processing capabilities as provided by the UTCS VIVA system, may not wish to communicate with a central facility at all for small documents, but may elect to communicate when dealing with large applications.

The Demonstration

ATMS

UTCS is demonstrating an IBM product called ATMS (Advanced Text Management System) which we believe will provide a vehicle to meet many of the already stated objectives. Its principle benefits are:

1. full-screen editing, for IBM 3270 or 3270-compatible terminals currently installed by users (including administrative display terminals);
2. on-line interactive instruction, in the use both of the editor and the formatter;
3. on-going development to integrate this into the text processing environment envisaged for the University in the future.

This future integration will provide many benefits, for example it will enable users:

1. to co-operate on single ventures;
2. to transmit documents from user to user;
3. to perform text publishing, involving special characters e.g. linguistic and technical symbols;
4. to store and retrieve text through a data base, i.e. a computerized library;
5. to use automated typesetting;
6. to generate output on laser imaging high quality graphic devices;
7. to obtain computer output microform, e.g. microfiche or microfilm;
8. to use machine-readable filing system (otherwise known as electronic filing);
9. the ability to enter text by optical character recognition (OCR).

Functions which may also be invoked within ATMS currently provide for automatic spelling verification, automatic hyphenation, page make-up, numbering of tables, page numbering, tables of contents, and sorting. Many additional facilities exist for the sophisticated user of this system.

Costs

Using ATMS, the charges to the user will be based on an hourly rate where users pay only for what they use. For heavy users there will be a flat rate charge for ATMS which will ensure that users will pay no more than $4,000 per year total Connect and CPU charges. This should ensure that even heavy users will find the system cost-effective. Furthermore, the ability to use terminals readily available across Campus will provide a low-cost introduction to text processing.

Availability

It is expected that users will be able to make full use of the system by the summer of 1980. UTCS will assist ATS users in migrating from ATS to ATMS. Because of the upwards compatibility, users migrating to ATMS from ATS will easily adapt to the new system. However, it should be emphasized that UTCS welcomes suggestions to make this product more attuned to the University's needs.

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UTCS AND THE FUTURE OFFICE continued

Summary

Stand-Alone Systems

These word processing systems, although powerful in themselves, are best suited to small documents and their relatively high capital cost combined with minimal running costs, may, on an individual basis, provide an attractive solution to some cost centres. The absence of stored formatting instructions and individual peculiarities of these systems may make it difficult to transfer data to other machines. These peculiarities include the lack of a standard communications interface.

Centralized Systems

The low initial cost and the ability to provide powerful text processing through the use of a large host computer are attractions which are frequently offset for some users by the ongoing expense of using the computer. For the occasional user and for the individual concerned with large texts, this vehicle is however, considerably more flexible and its overall integration into the text processing environment provides a ready argument to cope with the commitment of funds. For other users the communal facilities provided by the large host are important. The cost per work-station will generally be markedly lower than for other systems.

VIVA

Both stand-alone and centralized processing systems have advantages and disadvantages. The factors determining which system is used by any given user will largely be individually made.

UTCS has started an experiment to evaluate the application of small stand-alone computer systems and shared logic computer systems to the requirements of the user community at the University of Toronto.

Word processing is one of the many possible applications that the VIVA project is evaluating others include instructional, research and administrative computing. It is our intention to provide machines which can be easily tailored to suit the individual and unique needs of a large educational institution.

The approach, which has already proved highly successful with first year students in an instructional computing experiment last fall, uses a high-speed interactive dialogued. This includes menu screens (from which a choice may be selected), fill-in-the-blanks on display forms and help facilities (interactive assistance), thus making the machine easy to use. The VIVA machine includes a large fast storage device to permit the use of moderate sized documents, dictionaries for spelling verification and automatic hyphenation, all of which may be simply and immediately invoked. The work-station also provides a communications facility to link to the main UTCS centralized systems, providing the user with all the functions of the centralized system.

The current demonstration of the VIVA office work-station provides a demonstration machine designed to highlight some of the concepts of this project. This demonstration is a simulation and is not intended to be complete. UTCS would like to take the opportunity to ask any users for their opinion on the design of VIVA so that when it is fully implemented, all suggestions may be carefully evaluated and where possible, incorporated into UTCS' office of the future machine.

Standards

By adhering to the form of the UTCS demonstration, i.e. using the IBM machine, it may be observed that users will be adhering to a standard through which communication with academic centres of research throughout the world will be readily possible. Data may be transferred from computer to computer with relative ease. Researchers at the University of Toronto may therefore be assured that their work may be transmitted in machine-readable form to colleagues elsewhere and similarly, co-

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UTCS AND THE FUTURE OFFICE continued

operative work amongst universities may be satisfactorily processed at the University of Toronto.

COMPUTER COMMUNICATIONS

Last month's *COMPUTERNEWS* gave brief descriptions of several communications services supported by UTCS. This month we announce the availability of 1200 bps service for APL and ATS. As the scheduled PACX installation date is still some time away, the description of the sign-on procedure through PACX is deferred to a future issue. This month we also begin a two part series describing the options currently available in selecting a communications link to connect to UTCS computers. We will provide enough information on their cost, quality and availability to allow the user to make an informed choice for his specific needs. The described options will be more than adequate for 90% of the users. The remaining 10% who may have additional requirements, should contact Walter Rosocha at 978-7087 to discuss them.

Please note that any cost figures should be interpreted as approximations. Although they are accurate at the time of this writing, they are subject to change by UTCS, Bell or other equipment vendors.

1200 bps Asynchronous Service: The installation of a 212A, 1200 bps full duplex, asynchronous modem is scheduled for March 3 for the S/370-165-II. APL and ATS users can access this port by dialing 978-5137. The 3033 already has 212A service for TSO and WYLBUR at 978-3959. The user must have a compatible 212A modem to access these services. Note that the 212A modem does not have provision for acoustic coupling. The 212A must be directly connected to a phone line. The user should contact his Bell representative for details on installing a 212A at his site. Some information on the requirements for connecting a 212A to the phone system is given in the next section.

Communications Links - Part I

The communications link between your remote site and UTCS computers has two components - the **physical medium** that is used to transport digitally encoded signals between the end points and the **drivers, transducers** or **modems** that inject and extract the digital dialogue between your terminal and the host. This month we will discuss the medium component.

Copper wire is the medium used in most teleprocessing links at University of Toronto. Twisted pairs of wire, with their limitations of speed and noise immunity, are a low cost and satisfactory solution to many communication needs. U of T users can obtain these facilities from Bell and in some cases from UTCS. The user can obtain dedicated (also knows as private or leased) lines, or use the telephone network. The charges for the use of these links consist of an installation charge and a monthly charge. The possibilities, charges and other parameters are summarized in Table I below.

The LINE column indicates the various classes of lines that are available. The UTCS and Bell leased lines are dedicated circuits between the user and a host port. The Bell Telephone lines are switchable and can provide a connection to any UTCS host by dialing the appropriate number. Note that PACX will give this switchable property to any line leased for asynchronous service. The table also has a row for telephone connectors. These are needed to connect non-Bell equipment to Bell telephone lines. They are not required for Bell leased lines.

The SPEED and NOISE LEVEL columns are indicators of line quality. The SPEED column shows the maximum data transmission rates currently used to communicate

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COMPUTER COMMUNICATIONS continued

with UTCS facilities. Noise level is a broad comparison of noise activity in the lines. Speed is affected by the line quality and length. To a certain degree, speed is also determined by the quality of the modems attached to the lines. Many sophisticated modems use complex circuity to overcome the noise and distortion problems of twisted pairs. The high quality of UTCS lines is due to their short length and controlled environment which minimizes distortion and noise sources. Bell lines are considerably longer, have more connections and pass through much noisier environments than the UTCS lines.

Obtaining a good, Bell leased line is a function of luck and perseverance of the Bell people. Cables suitable for data communications do not always exist at all possible locations. In such cases, the first available line is connected and the user gambles an installation fee on its quality. Most lines, however, do meet expected standards. Several have been operating at 9.6K bps without problems. One location operates at reduced rates (2.4K bps) because line quality cannot be improved and there is no current alternative. Occasionally the quality of Bell lines can vary intermittently because of various, temporary disruptions such as cut or shorted cables, temporary noise sources and aging connections. In most cases, Bell provides reasonable response, resolving the problem within a day or two. Some of the trickier intermittents have persisted for weeks. Despite these potential problems, a Bell leased line is a good bet for remote users who are close to or on the campus and desire the higher data rates.

The quality of the switched, Bell Telephone lines is significantly inferior to the previous two alternatives for data communications. Any data signal following a circuitous route through acoustic couplers, telephone exchanges, loading coils, amplifiers and miles of copper is very fortunate to arrive unmolested at its destination. The major disruption is due to switching noise induced at the telephone exchange. Other noise can be introduced from key sets (telephones handling several lines) and noisy contacts. In addition to these problems, acoustically coupled modems are susceptible to vibration and compressed carbon in the telephone mouthpiece. The acoustic coupler should be placed in a quiet, vibration-free location. Compressed carbon in the mouthpiece can be loosened by gently tapping the handset on a desk or by exchanging mouthpieces with another phone. These additional noise sources greatly reduce the potential data throughput and increase the probability of lines being accidentally disconnected.

Data is injected into the phone system using acoustically or directly coupled modems. The maximum data rate using acoustically coupled modems is 1200 bps. These cost approximately $1200 as compared to $250 for the 300 bps version. Higher speeds are attainable using directly connected modems, but there are additional requirements for direct connection.

If the modem is aproved by the Department of Communications (DOC) for interconnection to the telephone system, a jack is required. (See table below for prices.) It appears that many modems currently available will receive DOC approval, although this is a lengthy procedure. If the modem is not approved, a manual data connector is required. The purpose of the connector is to ensure that the modem signals conform to Bell standards. The automatic data connector also provides controls to automatically connect incoming calls to the modem. It is not generally required at remote sites where calls usually originate, but is used at host sites where calls are automatically answered.

One additional note to users who would like to take advantage of the interconnect policy from their home: the Bell tariffs, as approved by the Canadian Radio and Telecommunications Centre (CRTC), do not have provisions for interconnecting DOC certified communications equipment to house phones. Consequently, to be legal, one should have a business phone installed with a jack. You should not use the far less expensive extension phone jack that can be connected to your house phone.

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COMPUTER COMMUNICATIONS continued

The CHARGES columns indicate the cost for the various options. Most will be self-explanatory. The installation charge for a UTCS line will depend on the user's proximity to UTCS trunk lines. Only a limited number exist in certain areas of these building: McLennan Labs, Engineering Annex, Sandford Fleming, Galbraith, Mechanical, Medical Sciences, 215 Huron St., Pharmacy, Nursing, Lash Miller, Sidney Smith, and Ramsay Wright.

Bell leased lines are available at most locations. The on-campus category includes all locations on and contiguous to the main campus. The mileage for off-campus location is measured in airline miles from the user's location to the Computer Centre at 60 St. George St. The actual cable mileage will be considerably higher. The 4-wire circuit leased line is necessary to provide full duplex capability for certain modems.

The last two columns indicate the availability and expected installation time for these facilities. Only UTCS lines are in short supply. The availability of Bell facilities is usually good in most areas but there may be pockets where long installation times occur.

In conclusion, Table 1 summarizes the cost and quality parameters of several link options to UTCS users. Before finalizing the selection of the communications link, the choice of modems or line drivers must be made. Next month's *COMPUTERNEWS* will describe these selection options.

Walter Rosocha

LINE	SPEED (max.) Kbps	NOISE LEVEL	CHARGES			AVAILABILITY	INSTALLATION TIME
			INSTALLATON	MONTHLY			
UTCS	50	Low	Variable depends on location	5.80	4 wire	Poor	2-4 weeks if available
Bell Leased (on-campus)	9.6	Moderate	21.25/end	5.80	4-wire	Good	upwards of 4 weeks
Bell Leased (off-campus)	9.6	Moderate	21.25/end	5.00 1.65	1st 1/4 mile 2-wire additional 1/4 miles 2-wire Charges doubled for 4-wire	Good	
Bell Telephone	1.2 (acoustic) 2.4 (direct)	Moderate to High	24.50 24.50 42.00	13.50 15.00 27.35	On-campus, restricted On-campus, non-restricted Off-campus, business	Excellent	2 weeks
Bell Telephone Connectors			25.00 25.75 21.25	18.00 6.50 2.50	Automatic DC Manual DC Jack	Excellent	2 weeks

Note Bell charges a minimum installation fee of $43.00/end.

Table 1 Communications Line Parameters

YEAR END ACCOUNTING

University of Toronto budgets are established on an annual basis. Similarly, users' accounts with UTCS are funded on a corresponding year-to-year basis. The logistics of posting final billings from UTCS to the Controller's Office have created confusion and difficulty in past years. The difficulties arise from the fact that the Controller's Office requires UTCS to forward charges **prior** to the actual end of the fiscal year. This early deadline allows the Controller's Office to complete its processing by the year end date. However, it creates difficulties for UTCS account administrators by leaving them in an unfunded state for approximately 6 or 7 days. The purpose of this article is to identify the options for dealing with this situation available to account administrators.

Research Accounts

Most research accounts at UTCS expire on March 31. The Controller's Office has announced that all charges to be applied against the present research year which ends March 31 must be applied to the Purchase Order by **March 27.** Therefore, **March 27** will be the last date that access may be gained to and charges accrued against research accounts expiring March 31.

Research account administrators have the following three options available to them. First, the administrator may choose to do nothing. In this case no new charges will accrue after **March 27.** There will be a one month grace period for any auxiliary services such as data storage. At the end of the one month period, the data storage is subject to deletion. UTCS requests that administrators who no longer require access or data storage expedite the process by closing the account with a Change of Account Status form.

Second, account administrators whose grants may be extended into the next year or those who expect new funds should notify the UTCS Accounting Office. The notification may be either a copy of a Purchase Requisition or a Letter of Intent from the proper budgetary authority stating the amount of funding expected. Upon receipt of written notification the account will be permitted access even though it may be temporarily unfunded. To ensure uninterrupted service, the notification must be received by **March 21.**

Third, research users who are subsidized by their departments may continue to compute wholly funded by the subsidy until it is spent or until the subsidy account expires on **April 28.** Users may choose to discuss additional subsidy funds with their Departmental Representatives.

Administrative and Educational (A&E) Accounts

The procedural treatment of the fiscal year end has been the subject of debate among A&E administrators. One group believes that each year should be separated. The other group is not concerned if services rendered at the end of one year are paid for in the next. The system as established by the Controller's Office seems best suited to meet the desires of those in the latter group. In past years, UTCS has assumed that A&E activity is ongoing and that funding will be renewed. Accordingly, accounts have been left active during the unfunded period and accrued charges were posted against the next year's budget. This policy has not always met with approval from those A&E account administrators who prefer to keep their budget years separated.

Account administrators should be aware of the UTCS policy regarding the 1979-80 year end. The Controller's Office requires that all charges for this fiscal year be submitted

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YEAR END ACCOUNTING continued

on **April 28.** UTCS will assure that, unless otherwise specified, all A&E accounts will become inactive on this date. UTCS regrets that many accounts will still accrue some charges during this period due to data storage considerations. However, due to the sensitive nature of data storage, UTCS judges that it is better to allow this data to temporarily remain rather than to delete it, even though charges may carry forward to the next year. Unfunded storage is subject to deletion after a one month grace period. Administrators who no longer require access or data storage are requested to close their account by submitting a Change of Account Status form.

Administrators who are willing to carry their charges to next year may do so in one of two ways. They may provide the UTCS Accounting Office with a copy of a Purchase Requisition for the next fiscal year. Or, if the Purchase Order is not prepared in time, the administrator will be extended credit if his budgetary authority provides UTCS with a Letter of Intent specifying the amount of funding expected. Administrators should notify the Accounting Office by **April 23** to ensure uninterrupted service.

UTCS recommends that whenever possible, administrators follow the 'carry forward' method since it offers the least disruption of service and, of course, in the long run, it evens out acrosss budget years.

For further information or assistance, please contact your Departmental Representative, UTCS Computing Services Representative or Accounting Services at 978-8702.

Don Gibson

11TH OUCC

Queen's University at Kingston will host the 11th Ontario Universities Computing Conference, June 3-6, 1980. The theme for the conference is **INTERFACE.** As computing moves into the 80's it will be in a position, more than ever before, to be a major economic, cultural, and social force. To introduce people to the exciting world of computing and assist them in effective planning to translate their needs into reality is not an insignificant challenge. It is what this conference is all about.

Some of the topics which will be highlighted at the conference are: Graphics; Telecommunications; Office Automation; Computers and the Humanities; Organizational Structures.

Registration material may be obtained by contacting:

Program Committee
11th OUCC
Computing Services
Room 249, Dupuis Hall
Queens's University
Kingston, Ontario
K7L 3N6

UNIVERSITY OF TORONTO COMPUTING SERVICES

USER SURVEY

Dear User:

Over the past year UTCS has reorganized its internal structure to respond more effectively to your needs. UTCS is focusing its attention on continuing to improve our existing services and facilities.

We would like your views on those services which you feel are successful and those which require enhancements. To express your opinions, please spend a few minutes completing this questionnaire.

Please return the completed survey to any Computing Services Representative, the Terminal Coordinator at your site, or the UTCS Information Office via Campus Mail.

Results of this survey will be published in the June 1980 issue of COMPUTERNEWS.

D Cohen
Dr. Doron Cohen
Director, UTCS

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INFORMATION OFFICE
UNIVERSITY OF TORONTO COMPUTING SERVICES
11 KING'S COLLEGE ROAD, ROOM 206
TORONTO, ONTARIO
M5S 1A1

UNIVERSITY OF TORONTO COMPUTING SERVICES

USER SURVEY

1. How many years have you been using UTCS facilities? ________ years.

2. Please indicate your approximate **annual** computer usage.

☐ Less than $500.
☐ $500-$1,000
☐ $1,000-$2,000
☐ $2,000-$5,000
☐ More than $5,000

3. Which catagories best describe your computer usage? (Check those representing significant usage.)

☐ Administrative
☐ Instructional
☐ Research

4. Check those services which you use often.

☐ High Speed Job Stream (HSJS)
☐ General Purpose Job Stream (GPJS)
☐ APL
☐ ATS
☐ DEC-1090
☐ IMS
☐ TSO
☐ WYLBUR
☐ Data Entry
☐ Keypunching Services
☐ Other (please specify) ________________________

5. In general, how satisfied are you with the services offered by UTCS?

Highly Satisfied	Satisfied	Neutral	Dissatisfied	Highly Dissatisfied	Don't know or use
☐	☐	☐	☐	☐	☐

6. If you were a UTCS user two years ago, how would you rate UTCS overall performance now compared to then?

☐ Better
☐ Same
☐ Worse

If the performance has changed, how has it changed?

7. What **single** factor do you **like** most about UTCS services and facilites?

8. What **single** factor do you **dislike** the most about UTCS services and facilities?

9. Do you receive the UTCS COMPUTERNEWS? ☐ YES ☐ NO

10. If you do read COMPUTERNEWS, what changes (if any) would you suggest to its content or format?

11. Several UTCS educational aids and materials are named below. How satisfied are you with each of them? (Please check the appropriate box.)

	Highly Satisfied	Satisfied	Neutral	Dissatisfied	Highly Dissatisfied	Don't know or use
USERBOOK	☐	☐	☐	☐	☐	☐
Online documentation	☐	☐	☐	☐	☐	☐
Reference cards	☐	☐	☐	☐	☐	☐
Short courses	☐	☐	☐	☐	☐	☐
COMPUTERNEWS	☐	☐	☐	☐	☐	☐
Hotnews	☐	☐	☐	☐	☐	☐
System logon messages	☐	☐	☐	☐	☐	☐
Grafitti and Gripes	☐	☐	☐	☐	☐	☐
Advising	☐	☐	☐	☐	☐	☐

If you wish to comment on any of the items in question 12, please use the space below or the space provided on the back of this questionnaire.

12. Some characteristics of UTCS facilities and services are listed below. How satisfied are you with each one? (Please check the appropriate box.)

	Highly Satisfied	Satisfied	Neutral	Dissatisfied	Highly Dissatisfied	Don't know or use
Availability of programming languages, software packages, and libraries	☐	☐	☐	☐	☐	☐
Accessibility of UTCS advisors	☐	☐	☐	☐	☐	☐
Helpfulness of UTCS advisors	☐	☐	☐	☐	☐	☐
Ease of acquiring access codes	☐	☐	☐	☐	☐	☐
Reasonableness of charges for computing services	☐	☐	☐	☐	☐	☐
Security of systems	☐	☐	☐	☐	☐	☐
Job turnaround time	☐	☐	☐	☐	☐	☐
Response time for DEC-1090 timesharing	☐	☐	☐	☐	☐	☐
Response time for IBM timesharing:						
APL	☐	☐	☐	☐	☐	☐
ATS	☐	☐	☐	☐	☐	☐
IMS	☐	☐	☐	☐	☐	☐
TSO	☐	☐	☐	☐	☐	☐
WYLBUR	☐	☐	☐	☐	☐	☐
Maintenance of keypunches and CRT terminals	☐	☐	☐	☐	☐	☐
Maintenance of remote job entry terminals	☐	☐	☐	☐	☐	☐
Reliability of system	☐	☐	☐	☐	☐	☐
Hours of service	☐	☐	☐	☐	☐	☐
Convenience of access to computing facilities	☐	☐	☐	☐	☐	☐
Availability of online disk space	☐	☐	☐	☐	☐	☐
Tape library facilities	☐	☐	☐	☐	☐	☐

If you wish to comment on any of the items in question 13, please use the space below or the space provided on the back of this questionnaire.

13. What **one** change in UTCS services and facilities would make you happiest?

14. Do you anticipate your computing needs being different in the future? ☐ YES ☐ NO.
If you answered YES to this question what will these different needs be?

15. Are you using any non-UTCS computing facilities? ☐ YES ☐ NO.
If you answered YES to this question, please indicate which services they are and why you are using them.

16. Please check the appropriate item which best describes your affiliation to U. of T.

☐ Faculty
☐ Graduate Student
☐ Staff Member
☐ Undergraduate
☐ Other (please specify) ____________________

17. Your department is ____________________

.....**Please turn to the back page to complete this questionnaire.**

18. If you would like UTCS to contact you for a followup and/or would like to be put on the COMPUTERNEWS mailing list, please fill in the information below.

☐ followup NAME ______________________________

☐ COMPUTERNEWS ADDRESS ______________________________

____

____

____

TELEPHONE ______________________________

19. If you have additonal comments about UTCS services and facilities, write them below.

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE AND RETURNING IT TO UTCS.
WATCH COMPUTERNEWS FOR THE RESULTS OF THIS SURVEY.

COMPUTER INSTRUCTION - YES, THE TEACHERS DO TEACH

Editor's Note: The following article originally appeared in the Winter 1979 edition of *Options* and is reprinted with permission.

There is a common misconception or hope that in Computer Assisted Instruction (CAI) one will find a machine doing all the work while the instructor merely looks on in approval. Those looking for effortless teaching are probably also still looking for the philosopher's stone.

While it is true that the use of a computer can remove the drudgery of computation and of drill and practice, there are many more exciting ways to use the computer to accomplish effective and innovative teaching. Simulation, modelling and the use of graphics are some obvious examples. It is to discover and discuss these new teaching strategies that members from various communities in the University meet monthly to discuss progress in computer assisted instruction. The CAI committee began to meet about five years ago and included members from the Department of Chemistry at Erindale, Physics both at Erindale and St. George, the Faculty of Divinity, and representatives of UTCS. Over the years the structure of regular monthly meetings has evolved and the group has grown now to include representatives from the Faculty of Management Studies and the Department of Geography on both the Erindale and St. George campuses.

Although specific subject matter and programs are sometimes discussed, the main emphasis has been on teaching strategies, the sharing of reactions of students to various types of programs, and the most effective ways to explain this new medium. The meetings have become the place to exchange various software tools that can be used in writing programs in any discipline and thus obviate the necessity of each author re-inventing the wheel. Because of the close co-operation and participation of UTCS the meetings give the academic community the opportunity to understand and influence policy decisions within the computer centre. For example, recent adjustments in the pricing algorithm for computer time were modified at the suggestion of committee members and the acquisition of new system software was made to include several features especially desirable for teaching purposes. This forum is one of the few areas in the University where there is close co-operation between the sciences, commerce and humanities. It is through discussion in this group that it has become evident just how poorly the humanities have been underfunded in terms of computer time and how difficult it is for instructors to initiate programs involving the use of computers in departments where budgets are under great strain.

The Educational Development program has played a significant role in the development of computer assisted instruction at the University of Toronto through grants to individual authors for the development of lesson material in their particular area. More importantly Educational Development, through recently funded joint requests, has both recognized and promoted co-operation between various disciplines. One example is the funding of the **PROCTOR** documentation project.

PROCTOR, which was developed at the University of Toronto, is a system that acts much like a librarian. When students sit at a terminal and type in their computer number, they are immediately recognized by **PROCTOR** as students in a particular subject area and are allowed access to only those lessons as determined by their department. Students are thus restricted from playing games such as Star Trek or otherwise abusing departmental funds. For example, **PROCTOR** has both Greek lessons from the Faculty of Divinity and programs for the analysis of undergraduate laboratory experimental data from the Department of

continued...

COMPUTER INSTRUCTION continued

Physics. Any ordinary physics student would be able to access only physics lessons, except those special students who might be studying New Testament Greek as well. **PROCTOR** also has a management role, keeping track of student progress through lessons, maintaining records of performance and also providing a convenient mailbox system which allows for easy communication between teacher and student. Also associated with **PROCTOR** is a whole set of authoring aids which enable a new author to begin immediately to write lesson material in a format very close to English. These aids form the basis of a CAI authoring language and are the fruits of co-operation and discussion of the CAI committee members over many years.

Although the **PROCTOR** system has been functioning for some time, lack of proper documentation on the details of its structure has made it difficult for new authors within the University to use it. Lack of documentation has also hindered transportability to other academic institutions. Committee members realized that they had the solution to this problem almost within reach. Expertise in the person of an experienced programmer with extensive knowledge of **PROCTOR** was available within the Physics Department. Erindale College was willing to provide the use of a computer terminal to the programmer for the duration of the project and UTCS was willing to provide computer time so that documentation would be in the computer for editing and production. All that was missing was a small sum to recompense the programmer for his time and this was provided by Educational Development. The project was started in the summer of 1978 and is scheduled for completion in the fall of 1979. It is hoped that this material will greatly simplify the problem of new authors getting started in computer assisted instruction, and it will be a way of sharing the combined expertise of those already experienced in the use of computers in teaching.

For those already using the computer to supplement their teaching and to those who are interested in learning the possibilities open to them through the use of this medium, the CAI committee extends a cordial welcome. Just contact the author of this article for further information or for the date of the next meeting. Be prepared to work a little harder at the beginning, but also be prepared to share in the enthusiasm of your students as you open up for them new and exciting ways of understanding their world. Isn't that what teaching is all about?

John Pitre

SOFTWARE TOOLS AND USENIX MEETINGS

Boulder, Colorado was the scene of the Second Software Tools Group meeting and the winter USENIX meeting on January 28, and January 29 to February 1, 1980, respectively.

USENIX is the United States - based association of UNIX users. (UNIX is a trademark of Western Electric Corp.) UNIX is an operating system developed at Bell Labs. that runs on the DEC PDP-11 series computers, from the LSI-11 to the VAX 11/780.

The Software Tools Group was set up in response to Kernighan and Plauger's book *Software Tools* which describes a number of UNIX-like tools as illustrations to programming philosophy. These programs, written in RATFOR (a RATional version of FORTRAN) have been installed on a number of operating systems to provide a more powerful and convenient environment for both programmers and users. The Software Tools Group (STG) meetings have been held the day before the USENIX meeting to take advantage of common interests.

continued...

BOULDER CONFERENCE continued

Software Tools

The STG meeting presented the efforts of a number of organizations to enhance the programs in the ST book. This effort was complemented by the group organizing a number of Special Interest Groups to make recommendations on standards and submissions for the second ST tape distribution. Special Interest Groups were organized for the following areas: text processing, networking, RATFOR, and Software Tools primatives. STG is also planning a newsletter.

USENIX

Talks at the USENIX meeting centered around the new version (V7) of UNIX and converting to it, UNIX on non-DEC machines, UNIX look-alikes, and UNIX performance improvements.

With the release of V7 last year, many of the UNIX sites have been converting over from their old systems. A number of problems have arisen in bringing up these systems, especially on non-standard hardware. These problems were discussed and one of the authors of UNIX was willing to establish a forum for solving them. Most were happy with the new version of UNIX.

V7 UNIX brought with it the portable C compiler (C is the backbone language in UNIX) and this has motivated a number of groups to install UNIX on non-DEC machines. These include the Harris/6, IBM Series/1, Amdahl 470, and a number of new (and old) micros, including the M68000 and the Z8000. Some of these developments have been made from scratch in order to avoid Western Electric copyrights and licenses. This has resulted in the production of some inexpensive turnkey systems for micros and minis.

Several sessions were devoted to techniques for improving and tuning system parameters to maximize throughput. Other topics discussed included databases, graphics, and users' experiences. One particularly well-received speech was given by Ron Morford, a blind systems programmer. He described the development of his speaking terminal and demonstrated its use.. This terminal would try to 'speak' the codes sent to a terminal. If it failed to pronounce the codes, it would spell them. VERT (VERbal Terminal) is being marketed for $5000.

Copies of the proceedings for these meetings are available for reference at the Information Office located in the Engineering Annex, Room 206.

Gregory Hill

NON-CREDIT SHORT COURSE AT UTCS

UTCS will offer the following non-credit short course in April:

Introduction to the DEC-10

Prerequisite: DEC Access Code (PPN)

Date: Monday, April 14

Time: 10:00a.m. - 11:00a.m.

N.B. Complementary terminal sessions to be arranged.

This course is designed for all potential or new users of the DECsystem-10. The course will cover the material that all users should know in order to use the DECsystem-10 effectively. The material covered will include a description of the file system, how to use it, and some of the commonly used conventions, a description of what some of the basic operating system commands actually do, a complete review of the special character terminal commands and related terminal control features, and a

continued...

SHORT COURSE continued

discussion of a few of the widely used programs on the system: SOS, TECO, RUNOFF, PIP, MIC, DIRECT, LOGIN, LOGOUT, and IBMLST, the program used to send jobs to and retrieve jobs from the IBM machines. In addition, the course will instruct participants on how to perform various special functions. Many users find that they would like to perform a particular operation (for example, adding or removing line numbers from a text file) but are unfamiliar with the commands involved. The course will provide this type of information. It will also provide a great deal of valuable information which at present is scattered throughout the system documentation.

As is the case with all UTCS non-credit short courses, access to a valid Customer Account Number (CAN) is required in order to register. Registration can be arranged by phoning the UTCS Information Office at 978-4990 or registering in person at the Information Office, Room 206, Engineering Annex, 11 King's College Road.

Dawne Smith

SAS CONFERENCE DEBRIEFING

SAS users are invited to atend a debriefing session on the SAS Users Group International Conference held last month in San Antonio, Texas.

date: Thursday, March 20

time: 4 P.M.

place: McLennan Labs, room 347

John Roth

SPSS TO SCSS FILE TRANSFERS

Until now, transferring an SPSS file from the UTCS 3033 to SCSS (the SPSS Conversational Statistical System) on the DECsystem-10 has been a rather tedious process. The SPSS file had to be transformed into an SCSS file on the 3033 and copied to tape; the tape then had to be transferred between machine rooms and mounted on the DECsystem-10; and finally, the file had to transformed into a DECsystem-10 SCSS file.

A procedure has now been put in place to use the link between the 3033 and the DECsystem-10 to transfer the file. The SCSS file still must be transformed into an SCSS file on the 3033 (See SAVE SCSS in *SPSS UPDATE* manual), but then a simple TSO command will transfer the file to the DECsystem-10 for retrieval. The command causes the file to be translated into hexadecimal (since the link is not transparent to all binary codes) and sent as card images. The command is:

```
scsxfr <dataset name> <proj> <prog>
```

where <dataset name> is the name of the dataset containing the 3033 SCSS file, and <proj> <prog> are the two parts of the DECsystem-10 Project-Programmer number (PPN) under which the file will be retrieved. (For help, type: 'help scsxfr'.)

In WYLBUR, after creating the 3033 SCSS file, use the scsxfr exec file in WYL.LIB thus:

```
COMMAND?exe fro $wyl.lib#scsxfr cle
```

continued...

SPSS TO SCSS FILE TRANSFERS continued

and respond to the prompts. (For help, type: 'exec from Swyl.execdoc#scsxfr clear'.)

Card users can run the following job after creating the 3033 SCSS file:

```
// <job statement>
//  EXEC UTCCTSO
//SYSTSIN DD *
SCSXFR <dataset name> <proj> <prog>
/*
```

After the file is sent to the DECsystem-10, LOGIN to the PPN given in the command above and type:

```
.do scsxfr
```

This MIC file retrieves the card images sent over the link, runs a program to convert them from hex to binary, and runs a second program to transform the 3033 binary file into a DECsystem binary SCSS file named DECMST.DAT. (You may want to 'rename' it, and will be informed that it has been created in your disk area.) If the file is not ready for retrieval, you will be informed and should try later, as the link is sometimes busy. (For help, type: 'help scsxfr'.)

Having outlined this procedure to go from the 3033 to the DECsystem-10, it is fortunate that a tape has arrived from SPSS Inc. containing a program to transfer files the opposite way. This program should be installed in the near future and a facility similar to SCSXFR will be provided. Watch for announcements here and in 'hotnews' on both systems. Users wishing to use this file transfer facility or desiring more information are invited to call their Computing Services Representative.

John Roth

REMOVAL OF UTSELECT

As announced in last month's edition of *COMPUTERNEWS*, FILEBOL is now up and running at UTCS. FILEBOL is a general purpose, record-oriented utility which replaces the UTSELECT package. UTSELECT was originally developed for an MVT environment and has proven to be highly unreliable under MVS. Therefore, effective **April 1, 1980,** the UTSELECT procedure will be disabled and will be unavailable to users.

Questions regarding the use of FILEBOL or problems related to the removal of UTSELECT should be directed to your Computing Services Representative.

Herb Kugel

MARK IV DOCUMENTATION

Last month's edition of *COMPUTERNEWS* announced the coming of MARK IV Release 8 on March 15th.

As mentioned, Release 8 is upwards compatible with Release 6, currently on our system. This means that anyone using Release 6 documentation will not be impacted by the change. The same situation exists for users who have Release 7 documentation purchased subsequent to the issuance of Release 7 in 1978.

However, to take advantage of the added features in MARK IV Release 8, documen-

continued...

MARK IV DOCUMENTATION continued

tation for this new release should be obtained from the UTCS Information Office. To upgrade documentation from Release 6 to Release 8 requires the complete replacement of all manuals with the exception of the *Users Guide* and some special feature inserts which have not changed.

Following is a list of MARK IV manuals and the changes which are required to upgrade the documents from Release 7 to Release 8:

#	Title	Release 8
017	Reference Manual	update pages
342	OS/VS Operations Guide	update pages
673	MARK IV Diagnostic Messages	new edition
874	MARK IV Index	new edition
027	Users Guide	no change
445	Specifications Digest	new edition
013	Quick Reference Folder	new edition
047	Technical Information Bulletin	new edition

Special Feature Inserts:

106	Table Lookup (001)	new edition
107	Indexed Co-Ordinated Files (002)	no change
031	Time Processing (003)	no change
108	Extended File Processing (005)	no change
109	Extended Transaction Processing (006)	no change
033	Text Processing (007)	no change
110	Extended Reporting (014)	no change
036	Extended Segment Processing (016)	new edition
037	*Data Base Retrieval/IMS (017)	no change
321	Generalized System Interface (023)	new edition
E72	Array Processing (035)	new edition

Forms:

046	BR Basic Request	new edition
043	CT Catalog/Library Maintenance	new edition
041	ER Processing & Record Selection	new edition
113	FD/AD File or Array Definition	new edition
042	OS Output Specification	new edition
115	RC Run Control	new edition
045	TB Table Definition	no change
114	TD Transaction Definition	no change
039	TF Temporary Field	no change

*feature available on 3031 Processor only

Users requiring additional information on MARK IV should contact Andy Renouf, the MARK IV Co-ordinator at the University of Toronto (978-2695) or John Bradley (978-3995) and Lidio Presutti (978-7318), UTCS staff members who can advise and assist UTCS users with MARK IV problems.

Marg Doherty

ERRATA

Subscribers should note the following corrections to articles appearing in last month's edition of *COMPUTERNEWS.*

In the article entitled */*JOBPARM STATEMENT:*

// 1234,ABCD,20,50),...

In the article entitled *FILEBOL - THE MVS REPLACEMENT FOR UTSELECT:*

NS 'APPL.FILEBOL.UTCS.LIBRARY'

We regret any confusion these errors may have caused.

Janet Barr

COMPUTERNEWS SUBSCRIPTIONS FOR CAN HOLDERS

Some of our customers may have been surprised to receive a copy of *COMPUTERNEWS* this month.

In February, all users holding a UTCS Customer Account Number (CAN) were automatically added to the *COMPUTERNEWS* mailing list and will continue to receive an issue every month. UTCS felt that *COMPUTERNEWS* would be particularly interesting to CAN holders because it is a primary vehicle for informing our customers about rate changes, charging policies, computer security and other related topics.

Subscribers are invited to contribute articles for publication in *COMPUTERNEWS*. Material to be published in the Newsletter and/or suggested topics for future articles should be submitted to a Computing Services Representative or the Editor, Janet Barr.

Marg Doherty

PERSONNEL CHANGES

Two staff members have left UTCS this month. Cathy Gillevet, Assistant Editor with the Services Support Group has accepted a position in industry. Stephen Pascoe, a member of the Communications & Small Systems Group has also left UTCS. We wish them both success in their new careers.

A warm welcome is extended to two new members of Computing Services. Beverly Martin has joined UTCS Operations as a Computer Operator and Gregory Girard has accepted a position as an Engineering Technologist with Communications & Small Systems.

Theresa Veira

NEW TITLES IN THE DCS LIBRARY

Annual review of information science
and technology. v.14 (1979)

Association Internationale Donnees
pour le Developpement.
 Six pays face a l'informatisation:
 Canada, Etats-Unis, Grande-Bretagne,
 Hongrie, RFA, Suede.
Paris. Mission a l'Informatique, 1979.

Beineke, Lowell W. and Wilson, R.J.,
editors.
 Selected topics in graph theory.
London, Academic Press, 1978.

Bussey, Lynn E.
 The economic analysis of industrial
 projects.
Englewood Cliffs, N.J., Prentice-Hall,
1978.

Camille, Claude, and Dehaine, M.
 Harrap's English-French
 dictionary of data processing.
 2d ed.
London, Harrap, 1976.

continued...

NEW TITLES continued

Canadian Information Processing
Society.
Canadian salary survey 1979.
Toronto, CIPS, 1979.

Even, Shimon.
Graph algorithms.
Potomac, Md., Computer Science
Press, 1979.

Findler, Nicholas V., ed.
Associative networks:
representation and use of knowledge.
New York, Academic Press, 1979.

Gazdar, Gerald.
Pragmatics: implicature, pre-
supposition, and logical form.
New York, Academic Press, 1979.

Gertz, A., ed.
30 years of computing in Israel,
1948-1978.
Jerusalem, ILTAM, 1978.

Gildersleeve, Thomas Robert.
Successful data processing system
analysis.
Englewood Cliffs, N.J., Prentice-Hall,
1978.

Hiltz, Starr Roxanne and Turoff, M.
The network nation: human
communication via computer.
Reading, Mass., Addison-Wesley, 1978.

Hsiao, David K., Kerr, D.S. and
Madnick, S.E.
Computer security.
New York, Academic Press, 1979.

IFIP TC 2.5 Working Conference on
Performance Evaluation of Numerical
Software, Baden, Austria, 1978.
Performance evaluation of
numerical software, ed. by L.D.
Fosdick.
Amsterdam, North-Holland, 1979.

International Mathematical &
Statistical Libraries, Inc.
The IMSL library. 7th ed.
Houston, IMSL, Jan. 1979.
3 v.

International Symposium on Computer
Performance Modeling, Measurement,
and evaluation, Yorktown Heights,
N.Y., 1977.
Computer performance, ed. by
K.M. Chandy and M. Reiser.
Amsterdam, North-Holland, 1977.

Kohavi, Zvi.
Switching and finite automata
theory.
2d ed.
New York, McGraw-Hill, 1978.

LePage, Wilbur R.
Applied APL programming.
Englewood Cliffs, N.J., Prentice-Hall,
1978.

Lewin, Douglas.
Computer-aided design of digital
systems.
New York, Crane Russak, 1977.

Lucchesi, Claudio L. et al.
Aspectos teoricos da computacao.
Rio de Janeiro, Instituto de Matematica
Pura e Aplicada, 1979.

Symposium on Logic and Data Bases,
Centre d'Etudes et de Recherches c
de Toulouse, France, Nov. 1977.
Logic and data bases, ed. by
H. Gallaire and J. Minker.
New York, Plenum Press, 1978.

Syntax and semantics.
v.9 Pragmatics. 1978.
v.11 Presupposition. 1979.

UTCS SYSTEMS

3033 PROCESSOR

- located in Mclennan Physical Laboratories
- provides General Purpose Job Stream, High Speed Job Stream, TSO, WYLBUR
- 6 megabytes of memory
- MVS with JES2

SYSTEM/370 MODEL 165-II

- located in McLennan Physical Laboratories
- provides APL and ATS services
- 4 megabytes of memory
- OS/MVT with APL and ATS

3031 PROCESSOR

- located in McLennan Physical Laboratories
- provides administrative IMS/VS DB/DC Batch and TSO services
- 6 megabytes of memory
- MVS with JES2

DECSYSTEM-10 Model 1090

- located in Sandford Fleming
- provides General Purpose Time-Sharing
- 256 K - 36 bit words of memory
- TOPS-10 operating system

COMMUNICATIONS & SMALL SYSTEMS (CSS)

- located in SF106
- DEC GT44 System with PDP-11/40 CPU
- 2 Z80 based microcomputers
- DEC GT40 System with PDP-11/05 CPU
- provides specialized graphics and inter- active graphics
- provides on-line and real-time computing services, data acquisition and minicomputer services

UTCS DIRECTORY

POSITION	ROOM	CENTREX PHONE NUMBER
Director		
Dr. Doron Cohen	MP350	8948
Associate Directors		
Rein Mikkor	MP350	5058
Al Heyworth	MP350	4936
Faculty Liaison Officer		
Dr. Frank Spitzer	MP350	4619
Manager, Communications & Small Systems		
Eugene Siciunas	MP350	4967
Manager, Operations		
Derry Cox	MP350	7092
Manager, Systems		
Ward Beattie	MP350	3579
Manager, Academic Computing Services		
Ralph Lombardi	MP350	7130
Manager, Administrative Computing Services		
Walter Berndl	MP350	7331
Manager, Services Support		
Don Gibson	MP350	5568
Administrative Officer		
Suzan Fawcett	MP350	4428
Information & Accounting Office		
General Inquiries	EA206	4990
Accounts		
Merton Hunte (U of T)	EA206	8702
Sylvia May (External)	EA206	7148
Supervisor, Accounting & Information Services		
Marg Doherty	EA209	3960
Access Codes		
Agatha Stevens	EA206	8703
Supervisor, Communication Systems		
Walter Rosocha	SF105	7087
Programming Services		
Bill Lauriston	SG201	6877

UTCS DIRECTORY continued

Entry Services

Supervisor		
Vera Cabanus	MP368	5040
Text Entry		
Dale Wright	MP368	4565
Data Entry		
Zelda Anderson	HU405	5273
Keypunching		
Dale Wright	MP368	4565

Supervisor, Applications

Herb Kugel	SG304	7286

Computing Services Representatives

Engineering Annex Terminal		
Sue Chong	EA201	4357
Program Advisors	EA103	
Time-Sharing Support		
TS Advisors	SG204	6465
Mark Tapia	SG204	7109
Erindale		
Paul Shindman		828-5311
Scarborough		
Bob Blackburn		284-3173
Arts and Science		
	SS2133	6509
New Physics		
Bob Chambers	MP1202	8823
External		
Ihor Prociuk	SG205	6875,6885

Supervisors, Operations

Paul Scarborough (IBM 3033-IBM 165)	MP335	6220
Krishna Patnaik (DEC-1090 & CSS)	SF106	4086
Dave Wong (IBM 3031)	MP335	6846

Key:

EA = Engineering Annex
SG = 49 St. George
HU = 215 Huron St.
MP = McLennan Physical Laboratories (New Physics)
SF = Sandford Fleming
SS = Sidney Smith

Job and System Status Queries

SYSTEM/3033,TSO	7373
ATS/APL	6234
2741 TERMINAL MALFUNCTIONS	7107

Time-Sharing Services	Dial-Up
APL,ATS	7200 Centrex 7201 Non Centrex
TSO,WYLBUR	6200 Centrex 6201 Non Centrex
DEC-10 Services	4224 Centrex 4244 Non Centrex
PHONE-IN ADVISING	6465

UNIVERSITY OF TORONTO
COMPUTING SERVICES
TORONTO, CANADA